DOCUMENT RESUME

ED 309 111 SO 020 020

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TITLE Nature and Content of Contemporary Economics.
PUB DATE 88
NOTE 32p.; Paper presented at the National Conference on the Future of Civic Education (Washington, DC, October 5-7, 1988). For related documents, see ED 302 474, ED 307 188, ED 307 192-193, ED 308 100-101, and SO 020 021.
PUB TYPE Viewpoints (120) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Course Content; *Economic Research; *Economics; *Economics Education; Social Scientists
IDENTIFIERS *Economic Theory; Macroeconomics; Microeconomics; Nobel Prizes

ABSTRACT

Economics does not have sharply delineated boundaries, but the domain has been defined broadly, and differently, from time-to-time. Currently, the contents of economics can be divided into the following broad areas: macroeconomics, microeconomics, and development economics. Most economists specialize in one or more of the more narrowly defined branches of economics. They can be further classified as "tool makers" or "tool users." Tool makers typically work at the discipline's frontier, formulating new theories and devising new techniques of analysis. Most economists are tool users who apply existing knowledge to assess economic problems and recommend change. The foundations of economics are being modified constantly by the tool makers. The recipients of the Nobel Memorial Prize in Economic Science for the years 1969-1987 are listed along with their accomplishments. The kinds of research which interest economists can be seen in the record of publications. Hundreds of periodicals are devoted primarily to the publication of research by economists. Several examples illustrate the analytical bases of economists' policy recommendations. Discussions of individuals and households, the labor market, business firms and efficiency, pricing of natural resources, environmental costs, monopoly and competition, macroeconomic policy, international economics, and comparative economic systems are included. Two tables detail the subject matter distribution of published manuscripts in the "American Economic Review," 1981, 1982, 1986, and 1987, and doctoral dissertations in economics, 1982 and 1987. (GEA)

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NATURE AND CONTENT OF CONTEMPORARY ECONOMICS

By

Andrew F. Brimmer*

I. Introduction

The task assigned to me called for my assessment of "... the content of economics (knowledge, skills, attitudes)." I have interpreted this to mean that I should identify the main themes in contemporary economic theory, analysis, and applications, and indicate the directions in which the profession is moving.

Economics does not have sharply delineated boundaries, but the domain has been defined broadly - and differently - from time-to-time. For example, in the late 19th century, Alfred Marshall (an Englishman who was the leading economist of his day) said that economics is "... a study of mankind in the ordinary business of life; it examines that part of individual and social action which is most closely connected with

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the attainment and with the use of the material requisites of wellbeing." A generation or more later, another leading English economist, Lionel Robbins, defined economics as "... the science which studies human behavior as a relationship between (given) ends and scarce means which have alternative uses."

More recently, Paul A. Samuelson, undoubtedly the most eminent economist today, offered the following description:

> "On first encountering economics, people want a short definition. In response to this demand, there is no shortage of supply. Here are a few popular definitions:
>
> - Economics is the study of those activities that involve production and exchange among people.
> - Economics analyzes movements in the overall economy - trends in price, output and employment. Once such phenomena are understood, economics helps develop the policies by which governments can affect the overall economy.
> - Economics is the science of choice. It studies how people choose to use the scarce or limited productive resources (land, labor, equipment, technical knowledge) to produce various commodities (such as wheat, beef, overcoats, concretes, roads, missiles) and distribute these goods to various members of the society for their consumption.
> - Economics is the study of how human beings go about the business of organizing consumption and production activities.

- Economics is the study of money, interest rates, capital and wealth .

Economists today agree on a general definition something like the following:

- Economics is the study of how people and society choose to employ scarce resources that could have alternative uses in order to produce various commodities, and to distribute them for consumption, now or in the future, among various persons and groups in society."

Within the rough boundaries sketched above, the contents of economics can be divided into the following broad areas:

"Macroeconomics." The focus is on the behavior of the economy as a whole - on output, income, prices, and unemployment.

"Microeconomics." The focus here is on the behavior of individual elements in an economy - including the determination of the price of a single product or the behavior of a single consumer or business firm.

"Development Economics." This subject seeks to identify and assess the factors responsible for self-sustaining economic growth - with the aim of determining the extent to which these factors can be influenced by public policy.

In the most general sense, economics is what economists do. Most of them specialize in one or more of the more narrowly defined branches of economics. They can be further classified as "tool makers" or "tool users." The tool makers are typically those working at the frontier of the discipline - formulating new theories to explain various aspects of economic behavior or devising new techniques of economic analysis. Membership in this group is very limited. The vast majority of economists are tool users. They are the journeymen who apply the economist's existing tool kit to teach economics, to analyze and assess economic problems, and to recommend changes in policies (both public and private) to improve economic performance.

The main tool making areas in economics include:

Economic Theory
Mathematical Economics
Econometrics

The main applied areas include:

Money, Banking, and Monetary Policy
Public Finance and Fiscal Policy
International Economics
Labor Economics
Industrial Organization
Growth and Development
Agriculture

Other areas of specialization include:

Economic History
Business Cycles
Economic Forecasting
Managerial Economics
Regional Economics
Public Utilities
Economics of Natural Resources
Consumer Economics
Economic Geography
Comparative Economic Systems

II. Frontiers In Economics

The foundations of economics are being modified constantly by a handful of economists working at the frontier of the discipline. The nature and importance of their contributions are recognized and illustrated by the award of the Nobel Memorial Prize in Economic Science.

Year	Recipient	Citation
1969	Ragnor Frisch Oslo University-Norway and Jan Tinbergen Netherlands School of Economics - Rotterdam	Honored for the development of mathematical models for analyzing economic activity.
1970	Paul A. Samuelson Massachusetts Institute of Technology - U.S.A.	Cited for the development of static and dynamic theory mainly through use of mathematics. Stellar advances in theory of general equilibrium.

1971	Simon Kuznets Harvard University, U.S.A.	Honored for his contribution to national income accounting which made possible the measurement of comparative economic growth among nations.
1972	Kenneth J. Arrow Harvard University, U.S.A. and John R. Hicks Oxford University, Great Britain	For their separate pioneering work in the highly abstract field of equilibrium theory, the essence of which holds that a state of balance exists when competing economic forces cancel each other out.
1973	Wassily Leontief Harvard University, U.S.A.	For the origination of "input-output" techniques which permit the quantification and study of specific interdependencies in an economy and their use in forecasting major trends.
1974	Friedrich Von Hayek Salzburg University Austria and Gunnar Myrdal Stockholm University, Sweden	Cited for separate, steller contributions to monetary analysis (macroeconomics), with emphasis on business cycles and inflation.

1975	Leonid V. Kantorovich Institute of Economic Management, Moscow, U.S.S.R. and Tjalling C. Koopmans Yale University, U.S.A.	For their separate work on economic planning - particularly linear programming and other techniques for solving problems involved in deciding upon an optimum allocation of resources.
1976	Milton Friedman University of Chicago, U.S.A.	For his achievement in the fields of consumption analysis, monetary history and theory, and for his demonstration of the complexity of stabilization policy. Principal orginator of "monetarism."
1977	James E. Meade Cambridge University, Great Britain and Bertil Ohlin Stockholm School of Business Administration, Sweden	For their separate contributions to international trade theory.
1978	Herbert A. Simon Carnegie - Mellon University, U.S.A.	Selected because of his contributions to Organization and decision-making theory, with special emphasis on computer-modeling of information handling in business firms.

1979	W. Arthur Lewis Princeton University, U.S.A. and Theodore W. Schultz University of Chicago, U.S.A.	For their work in developmental economics. Lewis formulated models which seek to explain basic problems of underdevelopment. Schultz examined the critical role of agriculture in economic development.
1980	Lawrence R. Klein University of Pennsylvania, U.S.A.	For his work on econometric models and their application to the analysis of business cycles and macroeconomic policies.
1981	James Tobin Yale University, U.S.A.	For the origination of portfolio theory - which stresses optimum investment decisions in financial markets as well as in markets for physical assets.
1982	George J. Stigler University of Chicago, U.S.A.	Cited for seminal studies in industrial structures, the functioning of markets, and the causes and effects of public regulation.
1983	Gerard Debreau University of California - Berkeley, U.S.A.	For contributions to mathematical economics and general equilibrium theory.

1984	Richard Stone Cambridge University, Great Britain	For creating a national accounting system for monitoring the financial position of nations, tracking trends in comparing the workings of economic systems.
1985	Franco Modigliani Massachusetts Institute of Technology, U.S.A.	For his analysis of the behavior of household savers and of the market valuation of a firm, i.e., the relationship of a company's financial structure to the value placed on its stock by investors.
1986	James M. Buchanan George Mason University, U.S.A.	For contributions to public choice theory, which stresses methods for analyzing economicand and political. decision-making.
1987	Robert N. Solow Massachusetts Institute of Technology, U.S.A.	For seminal contributions to the theory of economic growth - particularly for his development of a mathematical model demonstrating that long-term growth depends on technological progress and is not driven solely by increases in capital and labor.

Several conclusions can be drawn from a review of the citations of Nobel Prize winners. First, in keeping with the criteria of the Selection Committee, the emphasis has been on the "scientific" aspects of the economists' work. By "scientific," the Committee appears to single out the theoretical and analytical contributions as opposed to policy prescriptions. This has also meant a particularly sharp focus on mathematical economics, econometrics, and statistics, although most awards cited multiple fields. For example, of the nineteen Prize Awards, eleven cited contributions in mathematical economics. Six of these were in combination with general equilibrium theory, another six with pure economic theory, four each with econometrics and monetary (macroeconomic) analysis, and three with economic growth. Secondly, the applied fields were represented rather lightly: monetary analysis (6); agriculture (1); industrial organization (1); and, international trade (1).

III. Differential Emphasis in Economic Research

The kinds of research which interest economists can be seen in the record of publications. There are several hundred periodicals devoted primarily to the publication of research by economists. For instance, in June, 1988, the Journal of Economic Literature (published by the American Economic Association) listed the contents of 303 journals and other periodicals. About two dozen of these published a wide range of manuscripts covering general economic topics, and the rest are devoted to coverage of specialized fields.

The American Economic Review (also published by the American Economic Association) is the flagship of the economics profession. The distribution of published manuscripts - by subject matter - for the years 1981, 1982, 1986, and 1987, is shown in Table 1. It will be noted that microeconomic theory has accounted for the largest percentage (13.6) of the articles in the four years combined. In second place was industrial organization (12.8 per cent), but the bulk of these appeared in 1987. Third-place rank was held by

manpower-labor (9.5 per cent), followed by fiscal policy and public finance (9.0 per cent) and international economics (8.2 per cent).

Another indication of the direction of contemporary research in economics is provided by data on the subject matter distribution of doctoral dissertations. The figures for 1982 and 1987 are shown in Table 2.

In 1987, the most popular area for graduate students was general economics - which includes economic theory. This field accounted for 15.3 per cent of the dissertations. The second most popular area was international trade (13.9 per cent), followed by monetary-fiscal theory and policy (13.7 per cent), and industrial organization and manpower-labor economics (each with 11.5 per cent). In 1982, the most popular field was economic growth and development (14.1 per cent). In second place was agriculture and natural resources (13.4 per cent). General economics ranked third (11.8 per cent), followed by international economics (10.6 per cent) and industrial organization (11.4 per cent).

In the typical dissertation, the author formulated

one or more theoretical propositions or developed a theoretical model which could be tested quantitatively. In the vast majority of cases, the implications of the results for public, household, or business policies were explored.

IV Selected Issues in Economic Analysis and Policy

As indicated above, economists are engaged in the examination of a wide range of issues with public and private policy implications. In this activity, they rely heavily on their tool kit of economic statistics, theoretical models, and applications. Several examples will illustrate the analytical bases of their policy recommendations.

First, the kind of issues that might be confronted by citizens at the household level will be discussed. Next to be examined are several questions that might have to be confronted by business firms (where most of us work) and by industries. Illustrations are then drawn from among policy issues facing both the national and international economies. Finally, some comments will be made regarding comparative economic systems.

Individuals and Households

Undoubtedly, in the future, medical care will be an increasing economic problem. Costs are rising, and there is a general lack of coverage. There is also a question of private vs. Federal Government supported health insurance. How should we choose? Should we be guided by - and limited to - the minimum costs of medical services that an informed citizen would choose to pay. It seems clear that in the future, an increasing proportion of the household budget will have to be devoted to medical care. How should we provide it, private vs. public, and who should pay the costs?

The Social Security System will raise similar issues. With an aging population, by the early 21st Century, we will have a growing number of dependents who are not working. They will be mainly older persons being supported by a shrinking number of workers. In other words, who will be paying the retirement costs. For more than 50 years, we have had a Social Security System in which the costs are covered by payroll taxes. The latter are intended to generate surpluses that will pay the costs of retirement in the future. Those costs are being

borne by employed persons in the population, since they are paying the taxes to support the retired, non-working part. It should be kept in mind that, as presently constituted, the Social Security System is not an annuity system. It is a system under which we pretend to make premium payments through payroll deductions. But, in fact, recipients of Social Security benefits are collecting payments from revenue raised by a payroll tax. The costs and benefits of the Social Security System will be debated continuously in the future.

In a similar vein, we will have to face the issues posed by poverty and welfare benefits. As is generally known, there is a sharp variation in the demographics of poverty. Poverty is concentrated especially among blacks and other minorities. But poverty rates are also high among whites with few skills. I believe that, over time, the gap between skill requirements and skill development will widen. Consequently, more and more people may find themselves left in a backwater, unable to compete for the higher skilled, higher paying jobs. The net result will be the persistence of a sizable fraction of the population entrapped in poverty. This is an economic

problem with which we will have to struggle continuously in the future.

Pricing of public utility services poses an issue of choice that is upon us today. Households have to confront this economic problem every time they pay their electric and telephone bills. Here we have a very striking example of an economic problem resulting from the deregulation of the telephone system. When AT&T was broken up and regional companies were established, we put in place a payment system designed to assure that users would pay the full cost of service. The old system involved substantial subsidies. Business firms, long distance customers, and the advertising revenue from yellow pages subsidized the cost of household telephone use. For example, a study we did in my company for AT&T indicated that, in 1975, the full cost of a single household telephone averaged $16.00 per month. The revenue was $9.00 per month paid by a household. Where did the other $7.00 come from? It was made up by subsidies from over-payments by long distance, business, and yellow page customers. Those subsidies were wiped out with the break-up of AT&T, and households now have

to pay the full cost of residential service. There will be additional examples of pricing and cost allocation questions in the future.

The economics of the underground economy will clearly interest citizens. What do I mean by the underground economy? Basically we are talking about unrecorded transactions that occur outside of the tax system. And I am not talking simply about the drug culture although that is included. Examples of the underground economy include (1) a physician who agrees with a carpenter to provide medical service in exchange for carpentry; (2) a handyman who gets paid in cash rather than by a check so it does not show up on his income tax, and (3) a mechanic who repairs automobiles in his spare time. I believe that a considerable part of total economic activity will continue to be underground in the future. How do we identify it and assure that participants pay their fair share of taxes?

Labor Market

As you know, in this country, the typical worker has to go out and search for a job. Most of us get new jobs or get promoted through local exchange of

information at work. But, as I mentioned earlier, skills will become much more critical in the years ahead. At the same time, the individual might find it increasingly difficult to match skills with available jobs or to have the information to do so.

The minimum wage is a perennial issue, and I believe it will typify the kind of policy question that will confront us in the future. Most economists believe that a legislated minimum wage will most likely raise costs of hiring some prospective employees to the point where it exceeds their productivity. Therefore, the minimum wage is likely to price them out of the market. What about the economic - as opposed to the social - basis of a minimum wage? This is an issue that is before the Congress today.

Let us look briefly at trade unions. These are institutions who's life is in danger. I believe that, over time, organized labor will play a diminishing role through collective bargaining to set wages, hours, and working conditions. As an economic institution, the trade union will continue to exist, but we will see a transformation of its functions. Citizens should be

aware of this trend, and they should understand its implications.

Business Firms and Efficiency

In our economy, innovation has taken place as much in individual medium-to-small-size firms as in big companies. But, there is also an increasing tendency for output to be concentrated in bigger firms as opposed to smaller enterprises. If one were to make a distribution of firms by size in any industry, one would notice that an increased share of the total output is likely to be concentrated in bigger firms. Given the high rates of mergers and acquisitions, the average size of the firm is getting bigger. That has a number of implications - for innovation, for efficiency, and for the distribution of economic power. Citizens will need to know some economics in order to appreciate the difficult issues that are being posed. They will also have to form judgements about the appropriateness of public policies with respect to mergers and acquisitions. We see takeovers occurring every day. As a stockholder, each of us must ask a number of questions: would I benefit if there were a takeover of the whole firm and the present

management thrown out? Are these short-run or long-term benefits? We need to know how to vote our shares. Do we get our short-term gains and run or do we stay for the long haul? These are the kind of issues we will have to confront increasingly.

Pricing of Natural Resources

How to price and maximize the efficient use of natural resources is a persistent economic issue. For example, in California, agriculture uses a major proportion of all the water in the state. In the Central Valley, a farmer can produce crops (e.g., cotton) using that water with a value of about $300 an acre. But if that farmer were to give up an acre of water and send it to Los Angeles, it would be valued at $600 an acre. How can the price system resolve these competing demands? How can the economic decision be made with respect to the alternative claims on that water? This is typical of the critical questions about pricing of natural resources that must be faced. It is the kind of issue on which citizens may have to vote, and they will need guidance on how to make those judgements.

Environmental Costs

One hears much about acid rain, water pollution, chemical dumps, and other environmental hazzards. These are what economists call external diseconomies. They arise in numerous ways. For instance, a firm might produce a commodity - e.g., steel - and in the process emit a certain amount of ash into the atmosphere. It produces steel at a given cost per ton. If that firm were required to install scrubbers or other devices to filter the smoke, steel would cost much more per ton. Who should pay for the investment? That is the kind of problem that environmental economics will encounter in the future. Should the citizens who live near the plant continue to suffer the ill effects of pollution? Should the firm and its customers or stockholders pay? The real cost is there , and it must be paid.

Monopoly and Competition

All of us know about the Organization of Petroleum Exporting Countries (OPEC). There is no doubt in my own mind that, when OPEC was successful, it raised the world price of petroleum well above the competitive level. That was a cost that had to be borne by the users of

petrolum. On the other hand, OPEC was able to raise the revenue received by the owners - the petroleum exporting countries - of oil reserves. So the oil exporters benefited. Thus, in this cost-benefit contest, the members of OPEC benefited the most. We need to be able to understand the behavior of firms in industries where there are few sellers.

Macroeconomic Policy

In the area of macroeconomic policy, one or two examples can be selected. First economic growth vs. inflation. Economists have learned how to promote national economic growth. For example, we know that if we cut taxes, we stimulate consumption, and this will probably boost the economy to a higher level of output. That, in turn, will generate jobs. We also know how to stop economic growth. The Federal Reserve can always raise interest rates and shrink the money supply enough to produce a recession. If the recession is deep enough, it will stop inflation. The Federal Reserve did that. From 1979 through 1982 there were two recessions - deep ones. The first one started in 1980, and it was short;

it lasted six months. But there was a long one from the late summer of 1981 to the end of 1982. The Federal Reserve created those recessions to stop inflation. It succeeded. But the cost was high. Unemployment rose to over 10 per cent. The beneficiaries were those who suffer from inflation, and that is most of us. The losers were those who lost their jobs. How can one judge that kind of a trade-off? Inflation vs. growth? This is a continuing economic problem at the national level.

The Federal budget deficit is another. We know today that the deficit is running in the neighborhood of $140-150 billion - having moved down from the neighborhood of $200 billion. A deficit of this magnitude causes substantial dislocations, including higher interest rates and reduced availability of funds in the private sector. The deficit resulted mainly from the large tax reduction of 1981 - and not to a burst of Federal spending. The persistence of the large deficit has sparked a continuing debate. How to cope with it is an issue that will have to be confronted far into the future.

International Economics

In the area of international economics, the issue of free trade vs. protection is long-running. Do we benefit the most from producing and selling abroad those goods where we have a comparative advantage? By the latter, we mean that we can produce two or more products better than other countries, but there are certain things that we can produce very much better. For us, the latter include computers and airplanes. We should also include agricultural products. We once had a substantial share of the world trade in agricultural products. Our Midwest was the world's premier bread basket, and we dominated world trade in corn, soybeans, and wheat. So it is not just in high-tech manufacturers that we had a comparative advantage; we had it in agriculture as well. So should we concentrate on the production and export of those commodities in those areas where we have a comparative advantage and import those items which we can produce only at much higher costs? The debate goes on. The trade bill that just went through Congress focused directly on these types of issues, and they will have to be faced perennially. Canadians are now debating

a free trade treaty with the United States, and the forces favoring protection are quite strong.

We will always be confronted with international trade and finance issues. They will grow in the future because the economy is becoming increasingly global. Not only ours, but other economies as well. So we need to know something about international economics. We will have to be able to make judgements about foreign trade and other aspects of international economic policy. Similarly, the world's financial markets are becoming much more integrated. Capital flows are much more responsive to developments beyond our borders. We need to know more about these developments.

Comparative Economic Systems

We ought to have some understanding of the competition between our market-oriented economy and the centrally planned economies of the Soviet Union, China, and the countries of Eastern Europe. We also should be able to appreciate the fact that increasingly, even in centrally planned economies, they are experimenting with market elements. Recently, I heard on the radio that the new chief of ideology in the Soviet Union (a Communist

Party official whose job it is to tell the Soviets what to think and how to think it) said that a centrally planned economy ought to be the hallmark of the Soviet economic system. However, he said, they should experiment increasingly with the introduction of key elements of market economies which might help improve productivity. I was in China this spring. The thing that stood out everywhere I went - not only in Beijing but also in three other cities I visited (and some of them a second time) - people were talking about a market economy. One sees people actively engaged in the market economy. My expectations is that these trends will continue on into the future. We will need to know more about them.

Table 1

American Economic Review

Subject Matter Distribution of
Published Manuscripts, 1981, 1982, 1986, and 1987

Subject Area	1981		1982		1986		1987	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
General Economics and General Equilibrium Theory	6	5.2	6	5.0	9	7.4	4	4.0
Microeconomic Theory	20	17.4	17	14.2	13	10.7	12	12.1
Macroeconomic Theory	4	3.5	4	3.3	12	9.9	8	8.0
Welfare Theory and Social Choice	11	9.6	8	6.7	1	0.8	3	3.0
Economic History, History of Thought, Methodology	7	6.1	3	2.5	7	5.8	1	1.0
Economic Systems	1	0.9	2	1.7	1	0.8	1	1.0
Economic Growth, Development, Planning, Fluctuations	3	2.6	13	10.8	6	5.0	2	2.0
Economic Statistics and Quantitative Methods	6	5.2	6	5.0	2	1.7	2	2.0
Monetary and Financial Theory and Institutions	8	7.0	11	9.2	6	5.0	6	6.1
Fiscal Policy and Public Finance	6	5.2	8	6.7	18	14.9	9	9.1

Table 1

American Economic Review

Subject Matter Distribution of
Published Manuscripts, 1981, 1982, 1986, and 1987
(Continued)

Subject Area	1981		1982		1986		1987	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
International Economics	13	11.3	8	6.7	8	6.6	8	8.1
Administration, Business Finance	5	4.3	2	1.7	4	3.3	0	0.0
Industrial Organization	10	8.7	7	5.8	14	11.6	25	25.3
Agriculture, Natural Resources	1	0.9	3	2.5	1	0.8	4	4.0
Manpower, Labor Population	10	8.7	14	11.7	13	10.7	7	7.1
Welfare Programs, Consumer Economics, Urban and Regional Economics	4	3.5	8	6.7	6	5.0	7	7.1
Total	115	100.0	120	100.0	121	100.0	99	100.0

Source: Calculations by Brimmer & Company. Data from The American Economic Review, May, 1983 and May, 1988.

Table 2

Doctoral Dissertations in Economics,
1982 and 1987

Subject Area	1982 Number	1982 Per Cent	1987 Number	1987 Per Cent
General Economics; including Economic Theory, History of Thought, Methodology, Economic History and Economic System	93	11.8	80	15.3
Economic Growth and Development; including Economic Planning Theory and Policy; Economic Fluctuations and Forecasting	111	14.1	42	8.0
Quantitative Economic Methods and Data; including Econometric Methods, Economic and Social Accounting	32	4.1	17	3.2
Monetary and Fiscal Theory, Policy, and Institutions	73	9.2	72	13.7
International Economics	84	10.6	73	13.9
Business Administration; including Business Finance and Investment, Marketing and Accounting	72	9.1	11	2.1
Industrial Organization and Public Policy; including Economics and Technological Change and Industry Studies	82	10.4	60	11.5
Agriculture and Natural Resources	106	13.4	56	10.7
Manpower, Labor, and Population; including Trade Unions and Collective Bargaining	75	9.5	60	11.5
Welfare Programs, Consumer Economics; Urban and Regional Economics	62	7.8	53	10.1
Total	790	100.0	524	100.0

Source: Calculations by Brimmer & Company, Inc. Data from The American Economic Review, December, 1982 and the Journal of Economic Literature, December, 1987.